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RIVER BLINDNESS UNDER ATTACK IN WEST AFRICA

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OUAGADOUGOU, UPPER VOLTA, IDRC -- In the Volta River Basin of West Africa, more than 100 000 people have been blinded by the parasitic disease onchocerciasis and another million are afflicted with it in varying degrees. But the first decade of a 20-year program to arrest the disease in the area -- it includes Benin, Ivory Coast, Ghana, Upper Volta, Niger and Togo -- has witnessed major progress despite as yet unresolved problems.

Onchocerciasis is caused by the thread-like worm parasite Onchocerca volvulus which is transmitted from person to person by the bite of the insect Simulium, commonly known as the blackfly. The fly breeds in rivers where the females transmit the parasite to people. The adult worms form fibrous nodules under the skin of the host's skull, and in the ribs, eyes and other areas of the body. The disease's major symptoms are skin rashes, severe itching, thickening of the skin, loss of skin pigmentation and genital enlargement. In severe cases, the victim goes blind.

Communities living near fly-infested rivers are forced to abandon fertile valleys. Most often they end up relocating on drylands.

In 1968, a conference was organized jointly by the World Health Organization (WHO), the Organization for Coordination and Cooperation in the Control of Major Endemic Diseases (OCCGE) and the U.S. Agency for International Development (USAID). Experts there concluded that the fight against onchocerciasis was not only feasible but that large-scale measures to destroy blackflies were urgently needed to reduce the prevalence and intensity of the disease and to reopen abandoned fertile lands to human settlement and farming.

Several years of study culminated in 1974 in the launching of the Onchocerciasis Control Program (OCP) aimed at arresting the disease in the Volta River Basin within 20 years.

Today, a decade later, a fundamental obstacle still confronts the fight against river blindness: in contrast to the situation with many other endemic diseases, there exists no effective medicine that can be administered in a mass campaign. The two onchocerciasis drugs currently on the market have drawbacks. Suramin, administered by intravenous injection, kills the adult parasites but its use requires numerous precautions because of toxic side effects. In contrast, diethylcarbamazine kills the offspring of the parasite but, unfortunately, not the adult worms. Because both drugs require close monitoring of the patient, they have not been used in any mass chemotherapy campaign.

Rather, OCP organizers have focused their efforts on destroying the disease-carrying flies (the "vector") by spraying insecticides along the waterways. Each week, technicians apply a biodegradable organophosphorous insecticide known as temephos to the insects' breeding sites to kill the larvae. Certain areas are inaccessible by land, so a fleet of helicopters and light planes is used. A number of African and foreign hydrobiologists and entomologists regularly monitor the effects of the spraying.

To parallel the insecticide campaign, OCP personnel are trapping and dissecting female blackflies in order to calculate the 'annual

potential for transmission' of certain breeding grounds. A total of 77 teams has been assigned to 352 insect collection points in the Volta River Basin.

The transmission potential level is essentially the number of Onchocerca volvulus larvae theoretically received by an individual in one year. WHO has set the acceptable maximum at 100 larvae per person per year, that is, the level below which the human population is not considered at risk of contracting onchocerciasis.

HIGH LEVEL OF SUCCESS

According to OCP's director, the disease has been virtually arrested in 90 percent of the 765 000 square kilometres covered. (The only location in which some children under five are reported to have onchocerciasis is mountainous Lama Kara in northern Togo.) In effect, the 500 000 children born since the vector-control program began are not at risk and the 10 million inhabitants no longer need fear the disease. Furthermore, the control of onchocerciasis has resulted in the return of large tracts of fertile land to farmers.

Although many people think river blindness might disappear from the Volta River Basin within a decade, there is now concern over the reinfestation of some liberated areas. Researchers claim the reappearance of the disease is due to the migration of Simulium flies from outside the control area. Others think that areas where blackflies have demonstrated resistance to insecticides naturally risk the spread of onchocerciasis. Nevertheless, it does not appear that the reinfestation will undermine the chances of the OCP's success.

The seven countries concerned continue to call on the international community to support the program financially. Phase 1, from 1974-79, cost about

US$56 million; and cost projections for phase two are more than double that.

Since OCP will be extended further east in phase two -- that is, farther into Togo, Benin, Ghana and even Nigeria -- even more funds will eventually be needed. And adding to these pressures are strong requests from Senegal and Guinea in the west to be included in the program.

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